

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of)	
)	
Review of the Commission's Rules Regarding)	
the Pricing of Unbundled Network Elements)	WC Docket No. 03-173
and the Resale of Service by Incumbent Local)	
Exchange Carriers)	
_____)	

**REPLY COMMENTS OF
THE UNITED STATES TELECOM ASSOCIATION**

The United States Telecom Association (USTA),¹ through the undersigned and pursuant to the Public Notice² released by the Federal Communications Commission (FCC or Commission) and pursuant to Sections 1.415 and 1.419 of the Commission's rules,³ submits its reply comments, addressing certain comments filed in response to the Commission's Notice of Proposed Rulemaking (NPRM) in the above-referenced proceeding.

As USTA explained in its initial comments in this proceeding, the Total Element Long-Run Incremental Cost (TELRIC) methodology is flawed and requires reform. None of the initial comments filed by competitive local exchange carriers (CLECs) in this proceeding persuasively

¹ USTA is the Nation's oldest trade organization for the local exchange carrier industry. USTA's carrier members provide a full array of voice, data and video services over wireline and wireless networks.

² Public Notice, WC Docket No. 03-173, DA 03-3278 (rel. Oct. 20, 2003) soliciting comment on the Commission's Notice of Proposed Rulemaking to examine the rules applicable to pricing of unbundled network elements and resold telecommunications services made available by incumbent local exchange carriers to competitive local exchange carriers.

³ 47 C.F.R. §§ 1.415 and 1.419.

argue otherwise, and the Commission should not now falter in its resolve to set forth new UNE pricing rules that are “more firmly rooted in the real-world attributes of the existing network” and more closely compensate incumbent local exchange companies (ILECs) for their real, forward-looking costs.⁴

DISCUSSION

Seven years of application of the TELRIC methodology by the state commissions has not resulted in the facilities investment that the Commission intended. Indeed, by preventing ILECs from recovering their actual forward-looking costs and permitting CLECs to purchase unbundled network elements (UNEs) at below-cost rates, TELRIC has *discouraged* investment in new facilities. Competition data released by the Commission just last month shows that, between December 2002 and June 2003, the number of CLEC-owned lines actually *declined* in absolute terms — from 6.4 million to under 6.3 million — even as the use of UNE-platform (or UNE-P) continued to grow rapidly.⁵

The core problem with TELRIC, which the Commission has recognized, is its “excessively hypothetical nature.”⁶ As opposed to looking to actual, real-world networks, TELRIC sets UNE rates based on a network construct, in which the most efficient available

⁴ *Review of the Commission’s Rules Regarding the Pricing of Unbundled Network Elements and the Resale of Service by Incumbent Local Exchange Carriers*, Notice of Proposed Rulemaking, WC Docket Number 03-173, FCC 03-224 ¶¶ 4, 38 (rel. Sept. 15, 2003) (NPRM).

⁵ *Local Telephone Competition: Status as of June 30, 2003*, Table 3, Federal Communications Commission, Industry Analysis and Technology Division, Wireline Competition Bureau, (Dec. 2003).

⁶ NPRM ¶ 7.

technology is deployed instantaneously and ubiquitously in the optimal configuration.⁷

Because no carrier can hope to have such ideally efficient networks,⁸ TELRIC produces rates that are well below the costs that any real-world carrier would incur. The hypothetical nature of TELRIC also results, as the Commission properly noted, in a lack of verifiability and transparency in the UNE rate-setting process.⁹ In fact, as the study USTA attached to its initial comments demonstrated, there is significant deviation between UNE rates and costs across the states,¹⁰ results that, as the Commission noted, do not “reflect genuine cost differences.”¹¹

One CLEC, Z-Tel, attached to its comments a study that purports to reach the opposite result and concludes that rate variations across states are proportional to cost differences.¹² However, as the attached response from the authors of the study USTA cited in its initial comments demonstrates, “the authors of the Z-Tel study make an elementary error in interpreting the results of their statistical analysis. . . . [T]heir empirical results, correctly

⁷ See NPRM ¶ 17.

⁸ As the Commission has explained: “In the real world . . . even in extremely competitive markets, firms do not instantaneously replace all of their facilities with every improvement in technology. Thus, even the most efficient carrier’s network will reflect a mix of new and older technology at any given time.” NPRM ¶ 50.

⁹ NPRM ¶ 7. (TELRIC proceedings are “a ‘black box’ from which a variety of possible rates may emerge.”).

¹⁰ Jeffrey A. Eisenach and Janusz R. Mrozek, *Do UNE Rates Reflect Underlying Costs?* The CapAnalysis Group LLC (Dec.15, 2003).

¹¹ NPRM ¶ 6.

¹² See Z-Tel Comments, Attachment 3 at 14 (Robert Ekelund, Jr. and George S. Ford, *Some Thoughts on the FCC’s Inquiry into TELRIC*) (hereinafter Z-Tel Study).

interpreted, actually support our original conclusion.”¹³ The authors of the Z-Tel Study, instead of looking to the *variation* of UNE rates as compared to UNE costs among the states, looked to the *average* difference between UNE rates and costs. This analysis is comparable, as Eisenach and Mrozek note, to “the statistician who, with one hand in a hot oven and the other in a bucket of ice, says that he’s quite comfortable *on average*.”¹⁴ Put another way, Z-Tel’s interpretation suggests that there is no difference in variation between loop rates set at \$10 in one state and \$20 in another state and loop rates set at \$5 and \$25 respectively in those states, because in both cases the average rate is \$15.¹⁵ That, of course, is incorrect. Thus, Z-Tel’s own results, when properly interpreted, demonstrate “that there is significant variation in UNE rates that is not explained by variations in costs.”¹⁶

Inasmuch as nothing in the CLECs’ initial comments undermines the conclusion that TELRIC discourages facilities-based investment and fails to compensate ILECs for their actual forward-looking costs in providing UNEs, the Commission should base UNE rates on “a cost inquiry that is more firmly rooted in the real-world attributes of the existing network, rather than the speculative attributes of a purely hypothetical network.”¹⁷ As other commentators explain in detail, this inquiry should involve calculating UNE costs by looking to the ILECs’ actual

¹³ Jeffrey A. Eisenach and Janusz R. Mrozek, *UNE Rates Do Not Reflect Underlying Costs: A Rebuttal to Ekelund and Ford* The CapAnalysis Group LLC 1-2 (Jan. 21, 2004) (attached hereto as Exhibit 1).

¹⁴ Exhibit 1 at 7 (emphasis in original).

¹⁵ *See id.*, Attachment A.

¹⁶ *Id.* at 7.

¹⁷ NPRM ¶ 4.

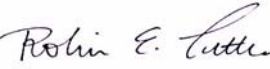
forward-looking costs in providing UNEs. Doing so will send efficient economic signals to both ILECs and CLECs and result in a more transparent and verifiable rate-setting process.

CONCLUSION

For all the reasons stated above, the Commission should reform TELRIC so that UNE rates are based on ILECs' actual forward-looking costs, as opposed to the costs generated by a most efficient, least cost, hypothetical network.

Respectfully submitted,

UNITED STATES TELECOM ASSOCIATION

By: 

Indra Sehdev Chalk
Michael T. McMenamin
Robin E. Tuttle

Its Attorneys

1401 H Street, NW
Suite 600
Washington, D.C. 20005
(202) 326-7300

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CERTIFICATE OF SERVICE

I, Meena Joshi, do certify that on January 30, 2004, the aforementioned Reply Comments of The United States Telecom Association were electronically filed with the Commission through its Electronic Comment Filing System and were electronically mailed to the following:

Tamara Preiss
Division Chief
Pricing Policy Division
Wireline Competition Bureau
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554
Tamara.preiss@fcc.gov

Qualex International
Portals II
445 12th Street SW
CY-B402
Washington, DC 20554
qualexint@aol.com

By: _____/s/_____
Meena Joshi

ATTACHMENT 1



**UNE RATES DO NOT REFLECT UNDERLYING COSTS:
A REBUTTAL TO EKELUND AND FORD**

January 30, 2004

Jeffrey A. Eisenach
Executive Vice Chairman

Janusz R. Mrozek
Senior Economist

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I. Introduction

In its current TELRIC NPRM, the Federal Communications Commission (“FCC” or “Commission”) expresses concerns about inconsistencies across states in UNE prices, which the states are required by statute to set solely on the basis of costs.¹ In late 2003, we conducted a statistical analysis of this issue, which was submitted to the Commission on December 16, 2003.² Our analysis concluded that the FCC is fully justified in its concerns, because “UNE rates do not bear a consistent relationship to underlying costs.”³

On the same day, Z-Tel submitted, as an attachment to its comments, a study by Robert Ekelund and George Ford (hereafter, “Z-Tel study”).⁴ Their conclusion was directly opposite of ours: They conclude that “FCC concerns about rates properly reflecting cost differences across states is (*sic*) unjustified because variations in prices across markets are in fact proportional to cost differences.”⁵ Only one of the two findings can be correct. Ours is correct. Theirs is not.

Helpfully, the two studies are directly comparable. They utilize precisely the same methodology, rely on essentially the same data, and obtain remarkably similar empirical results. The only fundamental difference is that the authors of the Z-Tel study make an elementary error in interpreting the results of their statistical analysis. This rebuttal demonstrates their error, one which does not involve esoteric issues of statistical interpretation, but rather a simple misunderstanding of how to measure

¹ *Review of the Commission’s Rules Regarding the Pricing of Unbundled Network Elements and the Resale of Service by Incumbent Local Exchange Carriers*, WC Docket No. 01-173, September 10, 2003, ¶¶6-7, ¶12. Available at http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-03-224A1.doc. (Hereafter “TELRIC NPRM.”)

² Jeffrey A. Eisenach and Janusz R. Mrozek, “Do UNE Rates Reflect Underlying Costs,” CapAnalysis, LLC (December 16, 2003) (available at http://gullfoss2.fcc.gov/prod/ecfs/retrieve.cgi?native_or_pdf=pdf&id_document=6515382327)

³ *Id.* p. 21.

⁴ Robert B. Ekelund, Jr. and George S. Ford, “Some Thoughts in the FCC’s Inquiry Into TELRIC” (available at http://gullfoss2.fcc.gov/prod/ecfs/retrieve.cgi?native_or_pdf=pdf&id_document=6515382412).

⁵ Z-Tel study at 14.

variation in a regression analysis. Indeed, we demonstrate that their empirical results, if correctly interpreted, actually support our original conclusion.

II. Data, Specification and Estimation

To properly assess variation in rates across states, several steps must be followed. First, one must gather relevant data on UNE rates and underlying costs. In this regard, the two studies are nearly identical. They use the same rate data from the same source;⁶ both focus on variation in UNE loop rates; both are based on data from July 2003.⁷ They utilize similar, but not identical, cost data. Both rely on estimates of state-by-state UNE costs made with a cost proxy model. We utilize the FCC's Hybrid Cost Proxy Model (HCPM), while Z-Tel reports results based on the Hatfield (HAI) model. Z-Tel states, however, that (not surprising to us) "comparable results" were obtained using cost data from the HCPM.

The second step is to specify a statistical model. The FCC has stated that variations in rates should be proportional to variations in costs. The two studies agree that the extent of variation from this benchmark can be measured by utilizing a regression analysis in which rates are regressed on costs. In our case, we report results for both a linear specification (in which actual rates are regressed on actual costs) and a "log-log" specification (in which the logarithm of rates is regressed on the logarithm of costs).⁸ Z-Tel reports only the log-log specification – but its log-log specification is identical to our own. Specifically, the studies agree that the model should be specified as:

⁶ The National Regulatory Research Institute.

⁷ Ours study also examines variations in UNE-P rates, whereas the Z-Tel study also analyzes UNE switching rates. Both studies agree, however, that the data on loop rates is more accurate than other UNE rate data, so both focus their attention on the UNE loop analyses. The Z-Tel study also reports results based on January 2002 data, whereas our does not.

⁸ We reported results for eight specifications of the model – linear and log-log regressions, weighted and unweighted, for loops rates and for UNE-P rates. Our results were robust across the different model specifications.

Generic Model

$$\ln P_{t+1}^L = \beta_0 + \beta_1 \ln C^L + \varepsilon_{t+1},$$

where $\ln P$ is the natural logarithm of the loop price, $\ln C$ is the natural logarithm of the cost proxy (from the HAI or HCPM proxy model), β_0 is an intercept term, β_1 is the coefficient on costs and ε is the error term.⁹

The third step is to estimate the model – i.e., to conduct the statistical analysis itself. For the log-log regression of 2003 UNE loop rates on UNE loop costs, the estimation procedures produce the following results:

Eisenach/Mrozek

$$\ln P = -0.79 + 1.12 \ln C + e$$

$$R^2 = 0.52$$

Z-Tel

$$\ln P = 0.18 + 0.94 \ln C + e$$

$$R^2 = 0.69$$

The two models produce strikingly similar results. As Z-Tel notes, its estimate of the constant term ($\beta_0 = 0.18$) is statistically indistinguishable from zero; ours ($\beta_0 = -0.79$) is as well. Similarly, both models estimate the coefficient on costs (β_1) to be statistically indistinguishable from 1.0. Given the similarities in the models themselves, it is hardly surprising that the resulting estimates are so closely aligned.¹⁰

III. Interpretation

The next step in the analysis is interpretation – i.e., understanding what the regression statistics actually mean in relation to the hypothesis. It is at this stage that Z-Tel makes an elementary error, as we now explain.

⁹ Ekelund and Ford use the $t+1$ subscript to indicate the regression for July 2003, and the L superscript to indicate loop. To make clear that the specifications are the same across the studies, we retain this notation.

¹⁰ The significance of the R^2 statistics from the two estimates is discussed below.

In interpreting its results, Z-Tel focuses on the coefficient (B_1) on the cost variable, C . The coefficient of 0.94, it explains, is close to 1.0. Indeed, it emphasizes, “the hypothesis that $B_1 = 1$ cannot be rejected at anything near standard significance levels.”¹¹ Thus, the authors conclude, “the variation in loop prices is strictly proportional to the variation in loop costs.”¹² To be certain there is no misunderstanding, the authors repeat the same statement a few sentences later: “Indeed, our results show that variations in loop rates across states, as of July 2003, are *strictly* proportional to variations in forward-looking costs across states.”¹³ As a result, “with regard to unbundled loop rates... the data does not suggest that the Commission’s rules need to be changed to correct undue ‘variability’ or disparate prices set by state commissions.”¹⁴

This interpretation is simply incorrect. In our study, we went to some lengths to explain the interpretation of coefficients, as opposed to error terms, in this context. As we explained there, the coefficient on the log-log regression “evaluates how much, *on average*, a UNE rate changes in percentage terms when the estimated UNE cost increases by a percent.”¹⁵ Thus, if the coefficient estimate is 1.0, states with a 10% higher cost benchmark than other states will *on average* have rates that are also 10% higher. If the coefficient estimate is 0.94, as in the Z-Tel results, then states with a 10% higher cost benchmark will *on average* have rates that are 9.4% higher than other states.

However, as we also explained in our original paper, and as the FCC clearly understands, “The tale of the average state is an inaccurate guide to the regulatory environment LECs face... as they must comply with the individual decisions made by

¹¹ Z-Tel Study, p. 10.

¹² Z-Tel Study, p. 10.

¹³ Z-Tel Study, p. 11. Emphasis in original.

¹⁴ Z-Tel Study, p. 11.

¹⁵ Eisenach and Mrozek, p. 11. Emphasis added.

each of the states.”¹⁶ The coefficient, upon which Z-Tel bases its conclusions, says *absolutely nothing* about variation across states.¹⁷ Attachment A further illustrates the complete absence of a connection between the coefficient and variation in rates.

To understand the variation in a regression analysis, one focuses not on the coefficient, but on the error terms – i.e., the extent to which individual observations deviate from the average, or “benchmark,” as estimated by the regression. At some points, the Z-Tel study seems to comprehend this. Section II of the paper, in fact, is dedicated to an analytically correct discussion that describes the UNE rate in any given state as the sum of the “true’ TELRIC” rate and an error term. Noting that “regulatory agencies are staffed by mere mortal men,” Z-Tel points out that it is “an unrealistic expectation” to think that the error term would be zero. The FCC, it suggests, should seek to minimize the error term, subject to a “cost-benefit analysis” that balances the costs of reducing error against the benefits of a more consistent outcome. “Given that we must accept the fact that $\delta \neq 0$ [the error term will not be zero] and recognize that we wish to minimize the error term when it is cost-effective to do so, empirical evidence is exceedingly relevant.”¹⁸

Given this well-formed understanding of the nature of the inquiry, it is difficult to understand why the Z-Tel authors shy away from examining the error terms when it comes time to interpret their empirical results. In our study, we go beyond evaluating the average relationship between rates and costs and examine the error terms in great detail, finding that variation of rates set by individual states in relationship to the benchmark is of sufficient magnitude and frequency that the FCC is justified in its

¹⁶ Eisenach and Mrozek, p. 12.

¹⁷ Strictly speaking, the coefficient in a log-log regression is an estimate of the elasticity of the dependent variable with respect to the independent variable – a measure of the average percentage change in the dependent variable (in this case, rates) that would result from a percentage change in the independent variable (in this case, costs). See, for example, Damodar Gujarati, *Basic Econometrics*, 3rd edition, New York: McGraw-Hill, 1995, p. 166.

¹⁸ Z-Tel Study, at 4-5.

concerns. The Z-Tel authors offer no evidence that this variation does not exist, nor do they offer evidence that this variation is not significant in magnitude.

IV. Reconciliation of Results

With one exception, Z-Tel does not report the regression statistics – such as the Root Mean Squared Error – necessary to compare directly their results with our own in terms of variation. The exception, however, is significant: Like us, they report the R^2 statistic for their regressions. R^2 is a measure of the proportion of variation in the dependent variable (in this case, rates) explained by variation in the independent variable (in this case, costs). As we explain in our paper, an R^2 statistic of 1.0 would imply that UNE rates vary precisely in proportion to costs, whereas an R^2 statistic of 0.5, for example, implies that the half of the variation in rates is *not* explained by variation in costs.

The Z-Tel paper reports an R^2 statistic on its 2003 loop rate regression of 0.69, compared with our R^2 statistic of 0.52.¹⁹ The straightforward interpretation of these results is that our model shows that about half the variation in UNE rates cannot be explained by costs, while the Z-Tel model estimates the proportion at about one-third. (Or, colloquially, our results show the states get it about half right, whereas Z-Tel suggests they get it about two-thirds right.)²⁰

The only remaining question is why Z-Tel's R^2 statistic – while still suggesting a great deal of variability in UNE rates – is somewhat higher than our own. The only

¹⁹ Z-Tel's authors correctly interpret the R^2 statistic in their discussion of the difference between their results using January 2002 data and their results for July 2003. "The R^2 of the [January 2002 equation] is 0.42, but is 0.69 for [the July 2003 regression], *indicating more of the dependent variable's variation is explained by costs in July 2003 than in January 2002.*" p. 10. Emphasis added.

²⁰ It is, of course, up to the FCC to determine whether half, or two-thirds, is "good enough." We point out in our study, however, that the economic costs of variation, and the lack of predictability it implies, are likely quite high. We also note that the Commission has previously declared an 8.8% deviation of rates from benchmarked costs to be essentially unacceptable, a standard that our results show more than half the states would fail. Z-Tel does not report the statistics necessary to determine how many states would fail this "benchmark test" based on its results, but the overall results of the two studies are sufficiently similar that we would expect the number to be significant.

significant difference between the two models would appear to be the difference in the cost-proxy model used, with Z-Tel relying on the CLEC-sponsored Hatfield model, while we rely on the FCC's own HCPM model. One possible explanation of the greater explanatory results of the Hatfield-based model is that the states are actually paying more attention to the Hatfield data in their rate setting behavior than they are to the "benchmark test" that has been endorsed by the Commission.

V. Conclusion

The Z-Tel study reminds us of the tale about the statistician who, with one hand in a hot oven and the other in a bucket of ice, says that he's quite comfortable *on average*. In finding that the coefficient on their log-log regression is not statistically different from one, the Z-Tel authors have said nothing about the *variation* in UNE rates among the states. Instead, their results confirm ours – that there is significant variation in UNE rates that is not explained by variations in costs. As we demonstrated previously, the deviations of UNE loop rates from the benchmark are on the order of 15-19%, with over half of the states deviating by more than 10%, and many deviating by more than 20%.²¹

Finally, Z-Tel – despite having little or no empirical basis for doing so – makes quite an effort to argue that UNE rates are actually above costs on an absolute basis. Our study did not focus on this issue, but we would be remiss if we did not report that the state average loop cost from the HCPM is \$21.52, while the state average loop rate from the NRRI data is \$14.44 – i.e., by this measure, rates are 33% below costs.²² This wide gap between HCPM costs and actual rates may be indicative of the CLECs'

²¹ The FCC has found that a deviation of only 8.8% is significant. See p. 19 of our original study.

²² As we noted in our original study, the issue of how best to calculate forward-looking costs is highly controversial. We indicated there, and repeat here, that our use of the HCPM as an indicator of *relative* costs is not meant to imply that we believe it is an accurate indicator of *absolute* costs. Indeed, we are aware of studies that suggest HCPM itself understates costs, which would suggest that the 33% figure reported here is an understatement of the extent to which rates are actually below costs.

success in persuading states to adopt their cost models over the available alternatives – i.e., to set UNE rates well below actual costs. Thinking about the “statistician” metaphor above, this suggests that, rather than incumbent companies having “one hand in the oven and the other on ice,” the more appropriate comparison may be “one hand in the oven – and the other on fire.”

ATTACHMENT A

Averages, Variation and the R^2 Statistic

One way of thinking about the difference between averages (i.e., regression coefficients) and variation is simply to recall the meaning of an average. Consider two data points: $X_1 = 10$ and $X_2 = 20$. The average of these two data points [$X_{\text{avg}} = (10 + 20)/2$] is 15. Consider two other points: $Y_1 = 5$ and $Y_2 = 25$. The average of these two data points [$Y_{\text{avg}} = (5 + 25)/2$] is also 15. But 5 and 25 are farther away (they vary more) from 15 than are 10 and 20. The Z-Tel study's interpretation is essentially equivalent to suggesting that, because both sets of data points have an average of 15, there is no difference in the variation.

A more sophisticated (and precisely on point) example is shown in Figures One-Three, which are similar to Figure Two from our original study. Here we show results from three hypothetical log-log regressions, each based on data from five hypothetical states. In all three cases, the coefficient on the cost variable (β_1) is equal to 1.0 (essentially the result from both the Z-Tel study and ours, and the focal point of the conceptual error in their analysis) and the intercept term (β_0) is equal to -0.51 (approximately half way between their estimate and ours).

In the first regression (Figure One), the data points all lie on the regression line – i.e., they do not vary from the “average” at all. Thus, the regression “explains” all of the variation in the relationship between costs and rates, and the R^2 statistic is 1.00. In this

case, and only this case, is “the variation in loop prices ... strictly proportional to the variation in loop costs.”²³

Figures Two and Three represent regressions in which the data has been constructed to produce R^2 statistics equal to the Z-Tel result (0.69) and to our result (0.52). As the figures clearly indicate, the data points *do not* lie on the regression line. Thus, the variation in loop prices is *not* strictly proportional to the variation in loop costs, even though the coefficient on the cost variable remains 1.0.

²³ Z-Tel Study, p. 10.

